Nalco Docket No. 7701
Customer No. 49459

In the United States Patent and Trademark Office

Applicants:	Brian V. Jenkins et al.	)	Examiner:	Elizabeth L. McKane
		)		
Serial No.:	10/617,467	)	Art Unit:	1797
		)		
Date Filed:	July 11, 2003	)		

For: METHOD OF INHIBITING CORROSION OF COPPER PLATED OR METALLIZED SURFACES AND CIRCUITRY DURING SEMICONDUCTOR MANUFACTURING PROCESS

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF PRIOR INVENTION IN THE UNITED STATES OR IN A NAFTA OR WTO MEMBER COUNTRY TO OVERCOME CITED PATENT OR PUBLICATION UNDER 37 C.F.R. § 1.131

Dear Sir:

This Declaration is to establish completion of the invention in this application in the United States prior to August 15, 2002, the effective date of U.S. Patent No. 6,436,711 B1 to Davis et al. ("Davis").

To establish a date of completion of this invention prior to the effective date of Davis, Applicants submit herewith excerpts from a signed and witnessed Invention Disclosure and Approval Form submitted by inventors Brian V. Jenkins and John E. Hoots establishing invention of the subject matter of the rejected claims prior to the effective date of the Ferrara reference.

Applicant declares that the Invention Disclosure and Approval Form is dated prior to August 15, 2002. Accordingly, Applicants respectfully assert that this invention was completed prior to the effective date of Davis.

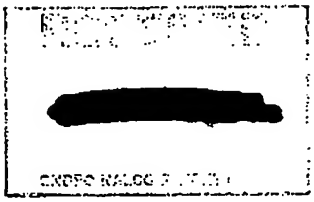
Nalco Docket No. 7701
Customer No. 49459

DECLARATION

As a person signing below, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: Dec 10 2008 Signed: Brian V. Jenkins

Dated: 12/10/2008 Signed: John E. Hoots



Case No. 7701
(To be completed by Patent Dept.)

Invention Disclosure and Approval Form

1. *A. Research Group:* _____
B. Charge Code: [redacted]

C. Subject of the Invention: Improved control of azoles as corrosion inhibitors in the semiconductor chip manufacturing process.

2. ***Detailed Description of the Invention:***

Semiconductor chip manufacturers use a variety of azoles to prevent in-process manufacturing corrosion to the copper circuitry in the semiconductor devices. Typically, at different points in the manufacturing process, the chips are immersed in a solution of ultra pure water and azoles. Corrosion protection is essential to ensure that the manufactured chips are will work as intended. Corroded circuits will not function as well as circuits that have been properly treated for corrosion inhibition. Efficient and effective application and control of the azole is critical for corrosion control. Over time, the azole content of the solution can be depleted, either by chemical / physical adsorption onto the circuitry, biodegradation, or by incidental dilution of the inhibiting solution with other water that does not contain azole.

Currently, the primary means of determining the viability of the azole in the solution are indirect, imprecise and inaccurate. The subject of this invention is to either: add an inert tracer to the azole and fluorometrically (or by other means) measure the presence of the tracer or azole in the bath. This same methodology could be used to automatically control the addition of azole to the bath to replace that azole which has been consumed, adsorbed, or otherwise depleted. The measurement of the azole directly via fluorescence (or other means) provides a more reliable, accurate and precise method of measurement and control. The measurement of the inert tracer and relative comparison of the azole and inert also offers improved analysis of what nature of azole consumption (adsorption, biodegradation, or fluid replacement) is taking place, and thereby provides diagnostic feedback. All of these improvements are advances over current available technology.

(Attach Additional Pages as Required)

3. ***Advantages of the Invention and Benefits to Ondeo Nalco if a Patent is Obtained.*** *Quantify in detail by attaching mathematical or other comparative data how your invention will allow Ondeo Nalco to improve an existing product or service, or allow Ondeo Nalco to provide a new product or service. Please provide all data in tabular form, along with complete chemical nomenclature (not Ondeo Nalco or lab notebook numbers).*

Current methods of measuring azole levels are indirect, imprecise and inaccurate or based on off-line assessments. This method is much more direct. Direct sales of service contracts, (O-N provides chemistry, monitoring and control technology) or licensing this method to tool manufacturers or other service providers would leverage Ondeo Nalco's position in the industry.

At this point, I would estimate the market potential to be $1.5-5.0 MM US. There are approximately 1000 semiconductor fabs in the world. If we estimate that the number of those moving to copper-based production is 30% and each one were to lease, say, (3) Xe-2 fluorometers from O-N, at an annual lease price of $6,000, that equates to an annual revenue stream of $5.4 MM. This does not include potential chemical revenue.

4. ***List other possible applications both within and outside of O-N for this invention. List PAC and Industry codes if known.***
It is possible that there are other applications for azole monitoring and control within manufacturing processes. It is recommended that a higher level, broader view search be undertaken, separate from this work.

5. ***Are you aware of any other disclosures related to this invention?***
No.

6. ***Attach a copy of your literature search and a copy of any pertinent literature reference that relates to your invention.*** *State the extent of your literature or patent searches. List any reference that you believe is relevant to the patentability of this disclosure. Failure to cite known relevant art which is material to the examination of your application may invalidate any patent which issues on your invention!*

Literature search attached. To the author, it does not appear that there exists any relevant work or prior art specific to the application described.

7. ***State the extent of use of this invention.*** *Please provide as much detail as possible Has the invention been trialed? Has the invention been sold or used commercially? If so, please provide date. Have you disclosed this invention to any third party either by publication, orally, or through use?*

The invention has not been trialed, sold or used commercially, or disclosed to any third party for sale in any way. We do have potential sites for evaluation.

8. *Technical Director Name:* Anthonie Lombard

☑ Approved Initials [signature] Date [redacted]

Please Indicate Groups that might use this Invention:

☐ **Paper:**

☐ **Industrial:**
- ☐ BIG

☐ **Specialty:**
- ☐ Unisolv
- ☒ Watergy

☐ **Process:**
- ☐ Ceramics
- ☐ GIG
- ☐ Mining

9. *Inventor(s) Signatures.*

Authorization Under 35 USC 111 and
Under 37 Code of Federal Regulations, Article 1.41

I (we), the undersigned inventor(s) of the above described invention, authorize any attorney employed by Ondeo Nalco Company or an officer of Ondeo Nalco Company to file on my (our) behalf any application(s) corresponding to the invention described in this form pursuant to 35 USC 111 and 37 Code of Federal Regulations, Article 1.41.

Full name of sole or first inventor (print or type): BRIAN V. JENKINS

Inventor's Signature: Brian V. Jenkins Date: [redacted]

Country of Citizenship: USA Social Security No.: [redacted]

Residence 35.283 HOME AVE WARRENVILLE IL. USA 60555

Name of Witness (print or type): JOHN H. COLLINS Signature of Witness: John H. Collins

Full name of second inventor (print or type): JOHN E. HOOTS

Inventor's Signature: John E. Hoots Date: [redacted]

Country of Citizenship: USA Social Security No.: [redacted]

Residence 1430 LANCASTER AVE., ST. CHARLES, IL (USA) 60174

Name of Witness (print or type): JOHN H. COLLINS Signature of Witness: John H. Collins

Full name of third inventor (print or type):

Inventor's Signature: Date:

Country of Citizenship: Social Security No.:

Residence

Name of Witness (print or type): Signature of Witness: